



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
|-----------------|-------------|----------------------|---------------------|
|-----------------|-------------|----------------------|---------------------|

09/172,298 10/14/98 RHODES

H M4065.101/P1

EXAMINER

NM92/1003

THOMAS J D'AMICO
DICKSTEIN SHAPIRO MORIN AND OSHINSKY
2101 L STREET NW
WASHINGTON DC 20037-1526

MUNSON, G

ART UNIT

PAPER NUMBER

2811

DATE MAILED:

10/03/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trad marks

Office Action Summary

Application No.

172,298

Applicant(s)

H. RHODES

Examiner

G. MUNSON

Group Art Unit

2811

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE THREE MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on 18 August, 13 September 2000
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-4, 7-15, 18-23, 25-29, 31-39, 41-63, 65, 66, 115-129 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-4, 7-15, 18-23, 25-29, 31-39, 41-63, 65, 66, 115-129 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
- ☐ received in Application No. (Series Code/Serial Number) _____
- ☐ received in this national stage application from the International Bureau (PCT Rule 1.7.2(a)).

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☐ Interview Summary, PTO-413
- ☐ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Other _____

Office Action Summary

Art Unit: 2811

Prosecution is continued under 37 CFR 1.53(d). The amendment filed 18 August 2000 has now been entered.

Claim 66 is rejected under 35 U.S.C. 112, first paragraph. The "processor" (claim 53) for particular use in a "camera" system component is unclear from the specification (page 19). See 37 CFR 1.83(a).

The process terminology (claims 31, 32, 38, 41, 42, 51, etc.) is considered only in terms of a necessary resultant structure from the process. The process itself is not at issue. The device claims are not limited to the recited process. See MPEP 2113; *In re Brown*, 173 USPQ 685 (CCPA 1972); *In re Fitzgerald*, 205 USPQ 594 (CCPA 1980); *In re Marosi*, 218 USPQ 289, 292, 293 (CCPA 1983); *In re Thorpe*, 227 USPQ 964 (CAFC 1985).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 7, 12, 14, 15, 18, 19, 25, 26, 28, 29, 31-33, 38, 39, 41-44, 46, 51, 53-55, 57-59, 66 and 115-119 are rejected under 35 U.S.C. 103 as unpatentable over the acknowledged prior art in this application (Figures 1, 2, pages 1-12) and Nagasaki et al, considered together. For an imaging device as in the acknowledged prior art (Figures 1, 2), it would have been obvious to use a photogate insulator with higher dielectric constant, as suggested by Nagasaki et al (Figure 17; columns 2-3), in order to increase the capacity of the photogate. From Nagasaki et al, it would have been obvious that

Art Unit: 2811

the materials used in this invention, e.g., silicon nitride as in claim 12, would achieve a higher capacity of the photogate than use of silicon oxide.

Claims 4, 27, 45, 56 and 120-129 are rejected under 35 U.S.C. 103 as unpatentable, the evidence being the acknowledged prior art in this application (Figures 1, 2, pages 1-12) and Nagasaki et al, applied as in the above rejection, further considered together with Koike et al. The claimed materials (claims 4, 27, 45, 56) are conventional to use as transparent or semi-transparent materials, as applicant would agree and as shown by Koike et al (column 3), which would have been obvious to use to achieve a transparent or semi-transparent photogate electrode. Moreover, it would have been obvious to have the photogate insulator extend over an adjacent "gate stack" (claims 120-124) as the photogate insulator does over "gate stack" 18 of Koike et al (Figure 2), in order to achieve a photogate insulator and adjacent gate as in the acknowledged prior art in this application (Figure 1).

Claims 8, 10, 11, 20, 22, 23, 34, 36, 37, 47, 49, 50, 60, 62 and 63 are rejected under 35 U.S.C. 103 as unpatentable, the evidence being the acknowledged prior art in this application (Figures 1, 2, pages 1-12) and Nagasaki et al, applied as in the above rejection, further considered together with Suzuki. The claimed materials (NO or ON), used by Suzuki (column 4), are well known to have a higher dielectric constant than silicon oxide, as applicant would agree (37 CFR 1.56, MPEP 2144.03), which would have been obvious to use for a photogate insulator in order to achieve a higher capacity for the photogate.

Claims 8, 9, 13, 20, 21, 34, 35, 47, 48, 52, 60, 61 and 65 are rejected under 35 U.S.C. 103 as unpatentable, the evidence being the acknowledged prior art in this application (Figures 1, 2, pages

Art Unit: 2811

1-12) and Nagasaki et al, applied as in the above rejection, further considered together with Okada et al. The claimed material (ONO), used by Okada et al, is well known to have a higher dielectric constant than silicon oxide, as applicant would agree (37 CFR 1.56, MPEP 2144.03) which would have been obvious to use for a photogate insulator in order to achieve a higher capacity for the photogate.

The references are of record.

The arguments in the remarks which accompany the amendment have been considered but are not persuasive, as noted above. Contrary to the remarks (pages 5-9), silicon nitride has a higher dielectric constant than silicon oxide, and Nagasaki et al (Figure 17) would have suggested use of an "insulating layer" with a higher dielectric constant than silicon oxide. Contrary to remarks, that a higher dielectric constant material than NO, ON or ONO would achieve a yet higher capacity of the photogate than in this invention follows the teaching of Nagasaki et al, rather than teaches away from Nagasaki et al. It would have been obvious from Nagasaki et al that this invention achieves lower capacity of the photogate by not using a material with a higher dielectric material than silicon nitride, ON, NO or ONO. From Nagasaki et al, it still would have been obvious that silicon nitride would achieve a higher capacity of the photogate than use of silicon oxide. Contrary to the remarks (5-6), Nagasaki et al (Figures 4-6) show the high dielectric material 4 only under photogate 9 and 21, but silicon dioxide under MOS transistor gate 6.

Contrary to the remarks (page 8), Koike et al (Figure 2) would have suggested an insulating layer over a substrate and a "gate stack" and beneath a photogate. To have such an insulating layer

Art Unit: 2811

silicon nitride would have been obvious, in view of Nagasaki et al, because silicon nitride has a higher dielectric constant than silicon oxide.

No claim is allowed.

Any inquiry concerning this communication should be directed to G. Munson at telephone number (703) 308-4925 or 308-0956.

Munson/nt

9-29-00



GENE M. MUNSON
EXAMINER
GROUP ART UNIT 2811